

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An electrostatic charge remover using soft X-rays, said remover comprising:

a head part neutralizing and weakening electrostatic charges of bodies, ~~that are objects off~~ or removal of the electrostatic charges from the bodies, by generating soft X-rays having wavelengths in the range of 1.2 Å ~1.5 Å with high energy from a soft X-ray tube that is an ion generating tube using thin film of Be evaporated with W as window material, and ionizing gas molecules directly and also removing electrostatic charges in atmosphere of inert gases (N₂, Ar);

a soft X-ray protecting part wrapping said head part and preventing that soft X-ray is leaked from said head part in order that ~~worker may not be bombed by a user of the electrostatic charge remover is not directly exposed to radiation;~~

a power controlling part being connected to said head part and said soft X-ray protecting part electrically and providing target voltage to control [[the]]ion generation of a soft X-ray tube and a filament voltage of [[a]]the soft X-ray tube, and soft X-ray tube with soft X-ray tube in order to control the ion generation so that said head part may generate soft X-rays appropriately, and

wherein ~~it is characterized in that~~ said remover removes the electrostatic charges [[an]]on the surface of charged bodies by generating ions or electrons by ionizing gases surrounding charged bodies.

2. (Currently Amended) [[An]]The electrostatic charge remover using soft X-rays as set forth in claim 1, wherein ~~it is characterized in that~~ said soft X-ray protecting part is made of iron plates with thickness of 1 mm and an interlock switch controlling whether said power controlling part operates or not and a door putting off said interlock switch

are installed in said soft X-ray protecting part for safety and in a state said door is opened, said head part does not generate soft X-ray.

3. (Currently Amended) [[An]]The electrostatic charge remover using soft X-rays as set forth in claim 2, wherein it is characterized in that said power controlling part controls anode voltage (target voltage) and filament current by using PWM modulator and pulse width controlling method and switches to a frequency of 30 KHz by constructing a half bridge circuit with FETs and the PWM modulator and the half bridge circuit are mounted for filament power and anode voltage generation respectively.

4. (Currently Amended) [[A]]The electrostatic charge remover using soft X-rays as set forth in claim 3, wherein it is characterized in that a voltage from an anode voltage generating part of said power controlling part is fed-back through tube voltage sensor and makes a target operate at a constant voltage of 9.5 KV, [[and]]

wherein a separated transformer, being which is a constant voltage source device to a filament current, is fed-back through a filament current sensor and a tube current sensor and makes a filament operate at constant current of 150 μ A, and current is fed-back through a tube current sensor, and

wherein the generated quantity of the soft X-ray does not change according to a time of use although it is used for a long time.

5. (Currently Amended) [[An]]The electrostatic charge remover using soft X-rays as set forth in claim 4, wherein it is characterized in that said anode voltage generating part of said power controlling part comprises:

- a high transformer generating high voltage;
- a tube voltage sensor detecting high voltage generated by said high transformer;
- a high voltage doubling rectifier, wherein voltage is fed-back to said rectifier through said tube voltage sensor and said rectifier operates at a constant voltage;

a transformer generating filament current;
a filament current sensor detecting filament current generated by said transformer;
and
a part inletting electric wires by insulating the electric wires from high voltage,
and fixing a ceramic soft X-ray tube.

6. (Currently Amended) [[An]]The electrostatic charge remover using soft X-rays as set forth in claim 1, wherein ~~it is characterized in that~~ said soft X-ray tube consists of vacuum tubes for generating soft X-ray by generating ions and a ceramic tube is used for controlling heat generation of said soft X-ray tube.

7. (Currently Amended) [[An]]The electrostatic charge remover using soft X-rays as set forth in claim 1, wherein ~~it is characterized in that~~ the effective maximum installation distance of said electrostatic remover is 2000 mm.

8. (Cancelled)

9. (Currently Amended) A soft X-ray tube manufacturing method used in an electrostatic charge remover using soft X-rays removing electrostatic charges on the surface of a charged body by generating ions or electrons after irradiating lights with high energy (wavelength in the range of 1.2 Å ~1.5 Å) and ionizing gaseous molecules directly to remove electrostatic charges in inert gases too and ionizing the surrounding gases near the charged body, said method comprising the steps [[for]]of:

painting Mo-Mn paste with silk screen on ceramics to get metallizing coat of a ceramic tube and then heating Mo-Mn paste under hydrogenous circumstances at 1,350° C. for two hours and cooling said heated Mo-Mn paste;

plating non-electrolytic nickel on said metallized surface after said cooling; deciding a filament's diameter according to the quantity of electrons to be

generated after said nickel plating and turning the filament around a round steel bar predetermined times and pulling the bar out of the filament and coating the filament with LaBaO;

coating anode material on a Be window plate after said LaBaO coating, wherein the edge to be brazed is left not to be coated and accordingly filler metal consisting of Ag of 73% and Cu of 27% flows over said coated anode surface and prevents [[the]]an efficiency of soft X-ray generation from dropping;

coating W over the Be window plate by using a [[f]]Filtered [[v]]Vacuum [[a]]Arc [[s]]Source (FVAS) coating device after said anode material coating;

performing high vacuum brazing by using an exclusive vacuum furnace and heating up temperature up to 900° C. by using a Mo heater and increasing degree of vacuum up to 4×10^{-7} Torr by using a turbo molecular pump and a rotary pump;

making vacuum exhaustion of a tube up to a predetermined degree smoothly in case of brazing junction and making every material melt and form a body if temperature is over a melting point and embossing filler metal and brazing said embossed filler metal in order to keep the degree of vacuum as high as possible; and

inserting a getter that is degassed at 450° C. as a non evaporable getter consisting of Zr-Ni-V-Fe material positioning near an inner cathode and activated in order to increase the life of tube.

10. (Currently Amended) [[A]]The soft X-ray tube manufacturing method as set forth in claim 9, wherein it is characterized in that said getter is fixed on the outer surface of a Ti cylinder of a cathode by welding in case ofwhen attaching a filament and said activated getter absorbs gases generated at the inner space of a closed tube and accordingly the degree of vacuum is kept for a long time and the life of said tube is prolonged.

11. (Currently Amended) [[A]]The soft X-ray tube manufacturing method as set

forth in claim 9, wherein it is characterized in that the X-ray tube is manufactured such that a target voltage is 9.5 KV and a filament current [[is]] of 150 μ A are used by the X-ray tube in order to generate soft X-rays.